

CLAIMS

I CLAIM:

- 1 1. A method for executing two or more computational
- 2 operations upon elements of a data structure, the method
- 3 comprising the steps of:
 - 4 (a) determining if any of the two or more
 - 5 computational operations to be executed are operable
 - 6 upon a same element;
 - 7 (b) determining if any of the two or more
 - 8 computational operations determined to be operable
 - 9 upon the same element are in kind operations;
 - 10 (c) determining if any of the two or more
 - 11 computational operations determined to be operable
 - 12 upon the same element and to be in kind operations are
 - 13 addition or assignment operations; and
 - 14 (d) executing the two or more computational
 - 15 operations determined to be operable upon the same
 - 16 element, to be in kind operations, and to be addition
 - 17 operations.

1 2. The method of claim 1 further comprising the
2 steps of:

3 (e) determining, of the two or more computational
4 operations determined to be operable upon the same
5 element, to be in kind operations, and to be
6 assignment operations, if a same value is to be
7 assigned to the same element; and

8 (f) executing the two or more computational
9 operations determined to be operable upon the same
10 element, to be in kind operations, to be assignment
11 operations, and to assign the same value to the same
12 element.

1 3. The method of claim 2 further comprising the step
2 of:

3 determining if any of the two or more
4 computational operations determined to be operable
5 upon the same element and to be in kind operations
6 violate a limit, then not performing steps (d) or (f).

1 4. A system for executing two or more computational
2 operations upon elements of a data structure, the system
3 comprising:

- 4 (a) a process operable to determine if any of
5 the two or more computational operations to be
6 executed are operable upon a same element;
- 7 (b) a process operable to determine if any of
8 the two or more computational operations determined to
9 be operable upon the same element are in kind
10 operations;
- 11 (c) a process operable to determine if any of
12 the two or more computational operations determined to
13 be operable upon the same element and to be in kind
14 operations are addition or assignment operations; and
- 15 (d) a process operable to execute the two or
16 more computational operations determined to be
17 operable upon the same element, to be in kind
18 operations, and to be addition operations.

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1 5. A computer readable medium containing computer
2 readable code, the medium comprising:

3 (a) a code segment for performing a process
4 operable to determine if any of the two or more
5 computational operations to be executed are operable

6 upon a same element;

7 (b) a code segment for performing a process
8 operable to determine if any of the two or more
9 computational operations determined to be operable
10 upon the same element are in kind operations;

11 (c) a code segment for performing a process
12 operable to determine if any of the two or more
13 computational operations determined to be operable
14 upon the same element and to be in kind operations are
15 addition or assignment operations; and

16 (d) a code segment for performing a process
17 operable to execute the two or more computational
18 operations determined to be operable upon the same
19 element, to be in kind operations, and to be addition
20 operations.

1 6. A processing system for executing two or more
2 computational operations upon elements of a data structure,
3 the processing system comprising:
4 a processor, the processor
5 (a) determining if any of the two or more
6 computational operations to be executed are operable
7 upon a same element;
8 (b) determining if any of the two or more
9 computational operations determined to be operable
10 upon the same element are in kind operations;
11 (c) determining if any of the two or more
12 computational operations determined to be operable
13 upon the same element and to be in kind operations are
14 addition or assignment operations; and
15 (d) executing the two or more computational
16 operations determined to be operable upon the same
17 element, to be in kind operations, and to be addition
18 operations.

1 7. A method for categorizing two or more
2 computational operations executable upon elements of a data
3 structure, the method comprising the steps of:
4 determining if any of the two or more
5 computational operations violate a limit; and
6 categorizing the two or more computational
7 operations determined to violate the limit as not
8 commutative.

1 8. A computer readable medium containing computer
2 readable code, the medium comprising:
3 a code segment for determining if any of the two
4 or more computational operations violate a limit; and
5 a code segment for categorizing the two or more
6 computational operations determined to violate the
7 limit as not commutative.

1 9. A method for categorizing two or more
2 computational operations executable upon elements of a data
3 structure, the method comprising the steps of:
4 determining if the two or more computational
5 operations to be executed are operable upon a same
6 element;
7 determining if the two or more computational
8 operations determined to be operable upon the same
9 element are in kind operations;
10 determining if the two or more computational
11 operations determined to be operable upon the same
12 element and in kind operations are addition
13 operations; and
14 categorizing the two or computational operations
15 determined to be operable upon the same element, to be
16 in kind operations, and to be addition operations as
17 commutative.

1 10. The method of claim 9 further comprising the
2 steps of:

3 determining if the two or more computational
4 operations determined to be operable upon the same
5 element and in kind operations are assignment
6 operations;

7 determining if the assignment operations are
8 assigning a same value to the same element; and

9 categorizing the two or computational operations
10 determined to be operable upon the same element, to be
11 in kind operations, and to be assignment operations
12 assigning the same value to the same element as
13 commutative.

1 11. A computer readable medium containing computer
2 readable code, the medium comprising:
3 a code segment for determining if two or more
4 computational operations to be executed are operable
5 upon a same element of a data structure;
6 a code segment for determining if the two or more
7 computational operations determined to be operable
8 upon the same element are in kind operations;
9 a code segment for determining if the two or more
10 computational operations determined to be operable
11 upon the same element and in kind operations are
12 addition operations; and
13 a code segment for categorizing the two or
14 computational operations determined to be operable
15 upon the same element, to be in kind operations, and
16 to be addition operations as commutative.

1 12. A method for executing two computational
2 operations upon elements of a data structure, the
3 method comprising the steps of:
4 executing the two computational operations if
5 either computational operation does not
6 violate a limit, and
7 both computational operations do not operate
8 upon a same element;
9 executing the two computational operations if
10 either computational operation does not
11 violate the limit,
12 both computational operations operate upon
13 the same element, and
14 both computational operations are addition
15 operations; and
16 executing the computational operations if
17 either computational operation does not
18 violate the limit,
19 both computational operations operate upon
20 the same element, and
21 both computational operations are assignment
22 operations that assign a same value to the same
23 element.

1 13. A computer readable medium containing
2 computer readable code, the medium comprising:
3 a code segment for executing two computational
4 operations if
5 either computational operation does not
6 violate a limit, and
7 both computational operations do not operate
8 upon a same element of a data structure;
9 a code segment for executing the two
10 computational operations if
11 either computational operation does not
12 violate the limit,
13 both computational operations operate upon
14 the same element, and
15 both computational operations are addition
16 operations; and
17 a code segment for executing the computational
18 operations if
19 either computational operation does not
20 violate the limit,
21 both computational operations operate upon
22 the same element, and

23 both computational operations are assignment
24 operations that assign a same value to the same
25 element.